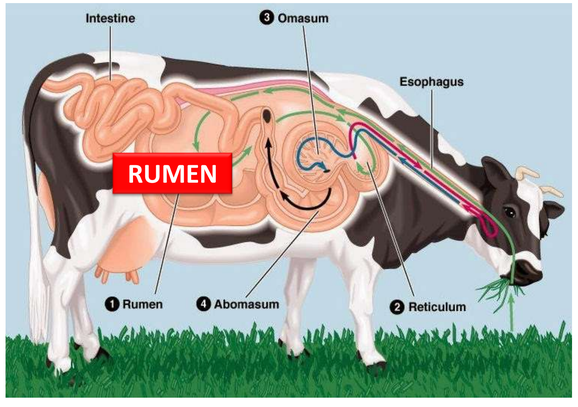
# Role of Tannins-containing Shrub Legume *Calliandra calothyrsus* on Rumen Microbes Metabolisms

Firman Nasiu, Indonesia

**Calliandra (*Calliandra calothyrsus*) is one of the most valuable forages for livestock such as cattle, sheep, goat, and buffalo.**

## INTRODUCTION

In Indonesia, calliandra is commonly used as the protein source feedstuff for livestock but it contains a chemical compound called ***tannins*** which, at excessive amount, can decrease nutritive value of feed produced in rumen.




Rumen is a vital compartment in stomach **which** contains millions of **microbes** including bacteria, fungi, and protozoa to support the animal in digesting feedstuff. But, these microorganisms can be disrupted by ***tannins.***

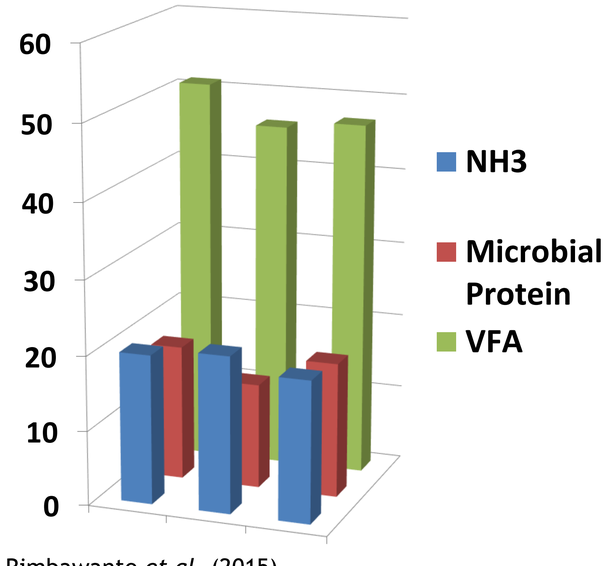
## OBJECTIVE

The aim of this study is to evaluate the effect of tannins compound on rumen microbial metabolisms which can be estimated from fermentation parameters including production of VFA (Volatile Fatty Acid), $NH_3$, and protein microbial in rumen.

## LITERATURE REVIEW

One of the good quality legume shrubs to provide adequate protein supply for ruminant is calliandra (*Calliandra calothyrsus*) (Ahn *et al.*, 1989). However, tannins in the plant can eliminate substrate availability to rumen microorganisms (McSweeney et al., 2001), and decrease the rumen microbial metabolism to produce valuable nutrient for the animal (Tiemann *et al.*, 2008; Ørskov, 1992; Rimbawanto *et al.*, 2015; Bergmann, 1990).

**Fermentation parameters value of calliandra analyzed by using *in vitro* technique.**

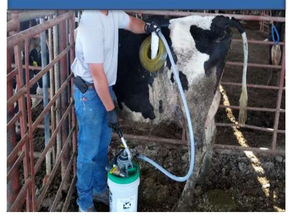



Rimbawanto *et al*. (2015)

## METHODOLOGY

***In vitro*** technique following procedure by Tilley and Terry (1963) was applied to analyze rumen microbial metabolisms by estimating the value of VFA production, NH3, and protein micobes.

Taking rumen fluid



Fermentation Process

Analyzing of $NH_3$, protein microbial, and VFA by using spectrophotometer

## CONCLUSION

It is expected that there would be more data resulted from this laboratory experiment as the basic knowledge for further study of role of tannins on the animal performance including body weight gain and meat and milk production.

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